



GAATTCCCCAACAGAGCCAAGCTCTCCATCTAGTGACAGGGAAAGCTAGCAGCAAACC 39 (UPPER: SEQ ID NO.: 1)
19 (LOWER: SEQ ID NO.: 4)

TTCCCTTCACTACAAACTTCATTGCTTGGCCAAAAGAGAGTTAATTCAATGTAGACAT 119
39

CTATGTAGGCAATTAAAAACCTATTGATGATAAAACAGTTGCATTATGGAGGGAAC 179
59

TAAATACATTCTAGGACTTTATAAAAGATCACTTTTATTATGGACAGGGTGGAAACAAG 239
79

ATGGATTATCAAGTGTCAAGTCCAATCTATGACATCAATTATACTGGAGCCCTGC 299
M D Y Q V S S P I Y D I N Y Y T S E P C 99

FIG. 1A-1

CAAAATCAATGTGAAGCAAATGGCAGCCGGCTCCTGCCCTCCGCTACTCACTGGTG	359
Q K I N V K Q I A A R L L P P L Y S L V	119
TTCATCTTGGTTTGTGGCAACATGCTGGTCATCCTCATCTGATAAACTGCAAAGG	419
F I F G F V G N M L V I L I L I N C K R	139
CTGAAGAGCATGACTGACATCTACCTGCTCAACCTGGCCATCTGACCTGTTTCCTT	479
L K S M T D I Y L L N L A I S D L F F L	159
CTTACTGTCCTCTGGCTCACTATGCTGCCAGTGGACTTTGAAATAAACATG	539
L T V P F W A H Y A A Q W D F G N T M	179
TGTCAACTCTGACAGGGCTCTATTATAGGCTTCTCTGGAAATCTTCTTCATCATC	599
C Q L L T G L Y F I G F F S G I F F I I	199
CTCCTGACAATCGATAGGTACCTGGCTCCATGCTGTGTTGCTTAAAGCCAGG	659
L L T I D R Y L A V V H A V F A L K A R	219
ACGGTCACCTTGGGGTGGTGAAGTGTGATCACTGGGTGGCTGTTGGCTCT	719
T V T F G V V T S V I T W V V A V F A S	239
CTCCAGGAATCATCTTACCAAGATCTCAAAAGAGTCTTCACTACACCTGCAGCTCT	779
L P G I I F T R S Q K E G L H Y T C S S	259
CATTTCATACA	
H F P Y	

FIG. 1A-2

GAATTCCCCAACAGGCCAAGCTCTCCATCTAGTGGACAGGGTAGCAGCAAACC 59 (UPPER: SEQ ID NO.: 2)
19 (LOWER: SEQ ID NO.: 5)

TTCCTCACTACAAACTCATGGCTGGCAAAAAGAGACTTAATTCAATGTAGACAT 119
39

CTATGTAGGCAATTAAAACCTATTGATGTATAAACAGTTGCATTCAATGGGGCAAC 179
59

TAAATACATTCTAGGACTTTATAAAGATCACTTTTATTATGCACAGGGTAGCAAG 239
79

ATGGATTATCAAGTGTCAAGTCCAATCTATGACATCAATTATAACATGGAGCCCTGC 299
M D Y Q V S S P I Y D I N Y Y T S E P C 99

FIG. 1B-1

CAAAATAATGAGCAAATCGAGCCGGCTCCTGCCTCCGGCTACTCACTGGTG	359
Q K I N V K Q I A A R L L P P L Y S L V	119
TTCATCTTGGTTTGGGCAACATGCTGGTCATCCTCATCCTGATAAACTGCAAAGG	419
F I F G F V G N M L V I L I L I N C K R	139
CTGAAGAGCATGACTGACATCTAACCTGCTCAACCTGGCCATCTCTGACCTGTTTCCTT	479
L K S M T D I Y L L N L A I S D L F F L	159
CTTACTGTCCCCCTTCTGGCTCACTATGCTGCCGCCAGTGGACTTTGGAAATAAACATG	539
L T V P F W A H Y A A Q W D F G N T M	179
TGTCAACTCTGACAGGGCTCTATTATAGGCTTCTCTGGAAATCTTCATCATC	599
C Q L L T G L Y F I G F F S G I F F I I	199
CTCCTGACAATCGATAGGTACCTGGCTCCATGCTGTTGCTTTAAAGCCAGG	659
L L T I D R Y L A V V H A V F A L K A R	219
ACGGTCACCTTGGGGTGGACAAAGTGTGATCACTTGGGGTGGCTGTGCTCTGGCT	719
T V T F G V V T S V I T W V V A V F A S	239
CTCCCAGGAATCATCTTACCAAGATCTCAAAAGAAGGTCTTCATTACACCTGGCT	779
L P G I I F T R S Q K E G L H Y T C S S	259
CATTTCACAGTCAGTATCAATTCTGGAAGAAATTCCAGACATTAAGATAAGTCATC	839
H F P Y S Q Y Q F W K N F Q T L K I V I	279

FIG. 1B-2

TTGGGGCTGGTCTGGCTGCTGCTCATGGTCATCTGCTACTCGGAAATCCTAAAACT	899
L G L V L P L V M V I C Y S G I L K T	299
CTGCTTCGGTGTGAAATGAGAAGGGCACAGGGCTGTGAGGGCTATCTTCACCATC	959
L L R C R N E K K R H R A V R L I F T I	319
ATGATTGTTATTCTCTGGCTCCCTACAACATTTGTCTCTCTGAACACCTTC	1019
M I V Y F L F W A P Y N I V L L N T F	339
CAGGAATTCTTGGCTGAAATAATTGCACTAGCTCTAACAGGGTGGACCAAGCTATGCCAG	1079
Q E F F G L N N C S S N R L D Q A M Q	359
GTGACAGAGACTCTGGATGACGGACTGCTGCATCAACCCCATCATCTATGCCCTTGTC	1139
V T E T L G M T H C C I N P I I Y A F V	379
GGGGAGGAAGTTAGAAACTACCTCTTAGTCTCTCTTCAAAGCACATTGCCAAAGCTTC	1199
G E K F R N Y L L V F F Q K H I A K R F	399
TGCAAATGCTGTCTTCTATTTCCAGGAAGAGGGCTCCCGAGCGAGCAAGCTCAAGTTACACC	1259
C K C C S I F Q Q E A P E R A S S V Y T	419
CGATCCACTGGGAGGAAATATCTGTGGCTTGAGCACCGAACTCAAGTGGCTGGT	1319
R S T G E Q E I S V G L *	439
GACCCAGTCAGGTGACATGGCTTAGTTCTACACAGCTGGCTGGGTGG	1379
TTGGNNAGGTCTTAAAGGAAGTTACTGTTATAGGGCTCTAGATTCCATT	459
TATTGGCATCTGTTAAAGTAGATTAGATCCGAATT	479

FIG. 1B-3

GAATTCCCCAACAGGCCAAGCTCTCCATCTAGTGGACAGGGAAAGCTAGCAGCAAAC 59 (UPPER: SEQ ID NO. 3)
19 (LOWER: SEQ ID NO. 6)

TTCCCTTCACTACAAACTCATTGCTTGGCCAAAAGAGAGCTTAATTCAATGTAGACAT 119
39

CTATGTAGGCAATTAAAACCTTATTGATGTATAAACAGTTGCATTCAATGGAGGGCAAC 179
59

TAAATACATTCTAGGACTTTATAAAAGATCACTTTTATTATGGCACAGGGTGGAAACAG 239
79

ATGGATTATCAAGTGTCAAGTCCAATCTATGACATCAATTATACATGGAGCCCTGC 299
M D Y Q V S S P I Y D I N Y T S E P C 99

FIG. 1D-1

CAAAATCAATGTGAAGCAAATGCCAGCCCGCCTCCTGCCTCCGCTCACTCACTGGTG	359
Q K I N V K Q I A A R L L P P L Y S L V	119
TTCATCTTGGTTTGTGGCAACATGCTGGTCATCCTCATCCTGATAAACTGCAAAGG	419
F I F G F V G N M L V I L I L I N C K R	139
CTGAAGGCCATGACTGACATCTACTCTGCTCAAACCTGGCCATCCTGACTCTGTTTCCTT	479
L K S M T D I Y L L N A I S D L F F L	159
CTTACTGTCCCTTCTGGCTCACTATGCTGCCAGCTGGACTTGGAAATAACAATG	539
L T V P F W A H Y A A Q W D F G N T M	179
TGTCAACTCTTGACAGGGCTCTATTATAGGCTTCTCTGGAAATCTTCTTCATCATC	599
C Q L L T G L Y F I G F F S G I F F I I	199
CTCCTGACAATCGATAGGTACCTGGCTGTCGCCATGCTGTTGCTTTAAAGCCAGG	659
L L T I D R Y L A V V H A V F A L K A R	219
ACGGTCACCTTGGGTTGGTGACAGTGTGATCACTGGGTGGCTGTTGCGTCT	719
T V T F G V V T S V I T W V V A V F A S	239
CTCCAGGAATCATCTTACAGATCTCAAAAGAAGGTCTTCATTACACCTGCAAGCT	779
L P G I I F T R S Q K E G L H Y T C S S	259
CATTTCCATACATTAAAGATAGTCATCTGGGGCTCCTGGCTGCTTGTCAATGGT	839
H F P Y I K D S H L G A G P A A C H G	279

FIG. 1D-2

CATCTGCTACTCGGAAATCCTAAACTCTGCTTCGGTGTGCGAAATGAGAAGAAGGCA	899
H L L G N P K N S A S V S K *	299
CAGGGCTGTGAGGCTTATCTTACCATCATGATTGTTATTTCTCTGGCTCCCTA	959
	319
CAACATTGTCCTCTGAAACACCTCCAGGAATTCTTGGCCTGAATAATTGCACTG	1019
	339
CTCTAACAGGTGACAGAGACTCTGGATGACGGACTCTGGCTG	1079
	359
CATCAACCCATCATCTATGCCCTTGTGGGGAGAAGTTCAGAAACTACCTCTTAGTCCT	1139
	379
CTTCACAAAGCACATTGCCAACACGCTTCTGCAAATGCTGTCTATTTCAGCAAGGGC	1199
	399
TCCCGAGGAAGCTCAGTTACACCGATCCACTGGGAGGAGGAATAATCTGTGGG	1259
	419
CTTGTGACACGGACTCAAGTGGCTGGTGAACCAAGTCAGGTGACATGGCTTAGTT	1319
	439
TTCATACACAGCCTGGCTGGGTNGTTGGTNGAGGTCTTTTAAGGAAGTACT	1379
	459
GTTATAGGGCTAAGATTCACTCCATTATTGGCATCTGTTAAAGTAGATTAGATCC	1439
	479
GAATTG	

FIG. 1D-3

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		1	2	3	4
CCR5	1	MDYQVSSPPIYDINYYTSEPCQKQMVQIARLLPPLYSLVFTFGVGMVYVILLINCKRLKSMTDIVLLNLAIISDILFPLI	83		
hCC-R2b	6	MLSTSRSRFIRNTNESEEVTTFFDYGAPQKQKEDVQKQTCQQLLPPLYSLVFTFGVGMVYVILLINCKRLKSMTDIVLLNLAIISDILFPLI	95		
hCC-R3		MTTSQDFTVETFGTTSYDDVGUQENADTRALMAQFTPPLYSLVFTVGLIAGVVMILLKTYRURIMTINYVLLNLAIISDILFPLI	87		
hCC-R1		METPNTTEDYDITTEPDYGDATPCKQKQNERARGAQQLLPPLYSLVFTVGLIAGVVMILLKTYRURIMTINYVLLNLAIISDILFPLI	87		
hCC-R4		MNFTDIAITTDIRESIYSMILIESPKPQNEGTRKARGELFPPLYSLVFTVGLIAGVVMILLKTYRURIMTINYVLLNLAIISDILFPLI	92		
CCR5	1	VPFWAHTAIAQWDFGNTMCOLLGLYFIGFGSGIFFILLTIDRYIAIWAHVAFLKARTVTGVTTSVITWVAVPASLPGIIFTRSQKEGLH	177		
hCC-R2b	1	LPLWAHSAIAANEWVFGNPMCKLFTGLYHIGYGGIFFILLTIDRYIAIWAHVAFLKARTVTGVTTSVITWVAVPASVPGIIFTKQQKEDSV	189		
hCC-R3	1	LPFWMIIYTRGHNMWFGHGMQNLSSCFYHTGLISEIIFILLTIDRYIAIWAHVAFLKARTVTGVTTSVITWVAVPASVPGIIFTKQQKEDSV	182		
hCC-R1	1	LPFWMIIKLDWFGDAMCKLSSCFYHTGLISEIIFILLTIDRYIAIWAHVAFLKARTVTGVTTSVITWVAVPASLPGIIFTKQQKEDSV	182		
hCC-R4	1	LPFWMIIYTRGHNMWFGHGMQNLSSCFYHTGLISEIIFILLTIDRYIAIWAHVAFLKARTVTGVTTSVITWVAVPASLPGIIFTKQQKEDSV	186		

FIG. 2A

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	CCRS	hCC - R2b	hCC - R3	hCC - R1	hCC - R4	VI	CCRS	hCC - R2b	hCC - R3	hCC - R1	hCC - R4	VII
YTCSSHTPYSOFRWAKNPFOTLKI	VILGLVPLVWVIVCYSGILKTLRCCRNEKKRRAVRLIFTIMIVYFLWAPYNIVLILNTEQEFFGLNNC	272					SSSNRLDQAMQVTETLGWTHCCINPILYAFVGKFR	NYLUVFQKHTIAKR	FCTCCSIRPQEAPRASSVYTRSTGEQEISVGL	352		
YMGPFPPRG . . .	WDFEHTLMRNLGLVLPPLIIMVIVCYSGILKTLRCCRNEKKRRAVRLIFTIMIVYFLWAPYNIVLILNTEQEFFGLNNC	280					ESTSQQDQATQVTEFLGTHCCINPILYAFVGKFR	YRFLSVERKHTIKR	FCTCCSIRPQEAPRASSVYTRSTGEQEISVGL	352		
TLCALYPEDTYSPRHEETRMTIFCIVLPLIWAICYGIGKTLRCCRNEKKRRAVRLIFTIMIVYFLWAPYNIVLILNTEQEFFGLNNC	276						ESTSQQDQATQVTEFLGTHCCINPILYAFVGKFR	YRFLSVERKHTIKR	FCTCCSIRPQEAPRASSVYTRSTGEQEISVGL	352		
HITCSL4HPPHESREWKLFQAKJNLFLGVLVPLIWCYGTGKTLRCCRNEKKRRAVRLIFTIMIVYFLWAPYNIVLILNTEQEFFGLNNC	276						ERSKHFLDLYMIVTENVAYTCCINPILYAFVGKFR	YRFLSVERKHTIKR	FCTCCSIRPQEAPRASSVYTRSTGEQEISVGL	352		
TYCKTKSYSLNST . TWKVLSSLEINILGLVLPPLGICMFCYSMII	279						EQSREHFLDLYMIVTENVAYTCCINPILYAFVGKFR	YRFLSVERKHTIKR	FCTCCSIRPQEAPRASSVYTRSTGEQEISVGL	352		
							TFERYFLDIAQATETIATFVHCCINPILYAFVGKFR	YRFLSVERKHTIKR	FCTCCSIRPQEAPRASSVYTRSTGEQEISVGL	352		

FIG. 2B

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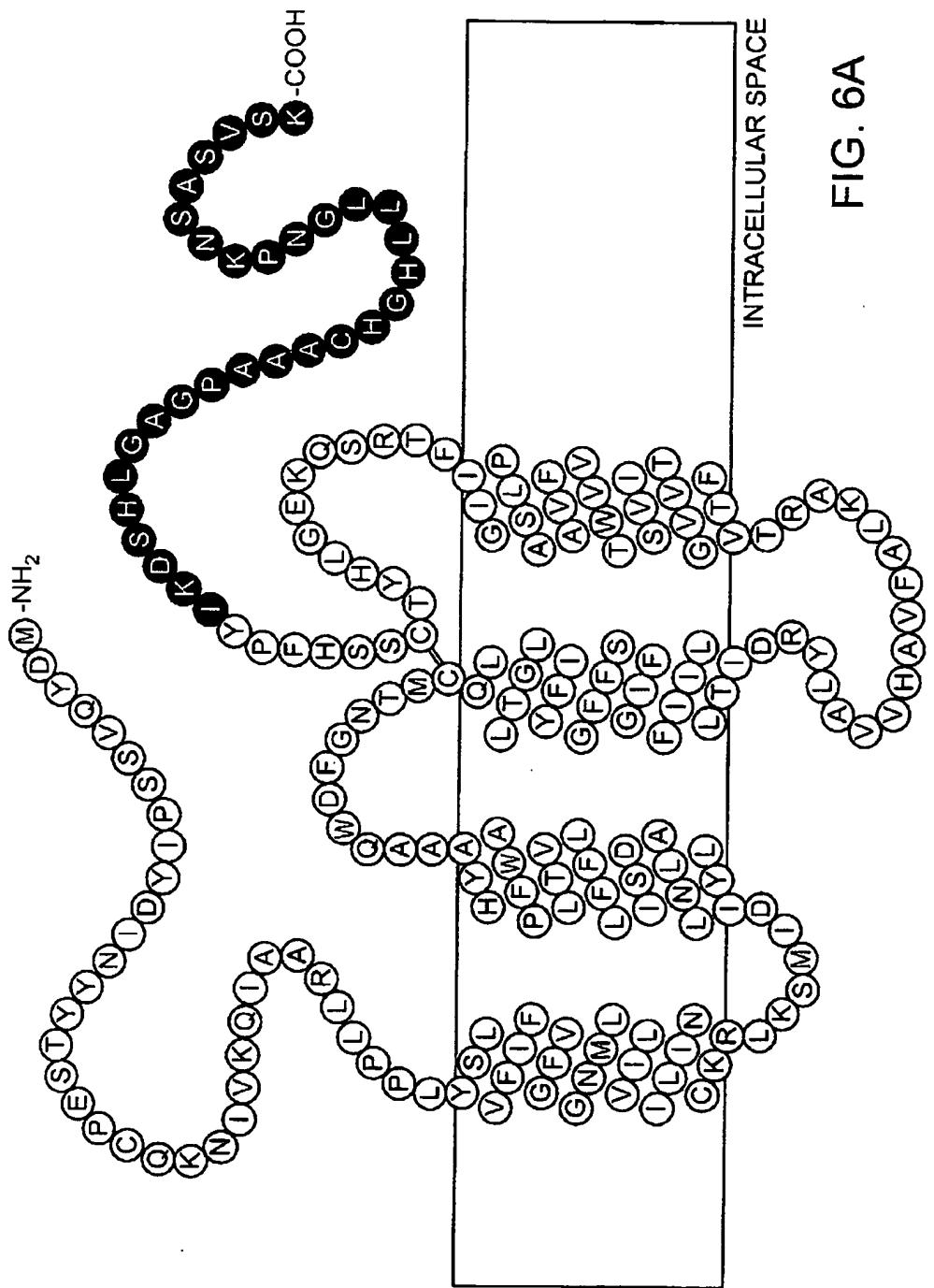


FIG. 6A

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CCR5 F P Y S Q Y Q F W K N P Q T L K I V I L G L V L P
TTTCCATACAGtcaattctggaaattccagaATTAAAGATAGTCATCTGGGGCTGGTCCCTGCCG
Δccr5 F P Y

deletion

CCR5 L L V M V I C Y S G I L K T L L R C R N E K K R
CTGCTTGTCACTGGTCACTGGGAATCCTAAACTCTGCTTCGGTGTCGAAATGAGAAAGAGG
Δccr5 A A C H G H L L G N P K N S A S V S K *

FIG. 6B